Week 2 Assessment 2

TOTAL POINTS 13

1. **The file you downloaded for the 2005 data has a total of 46853 housing units, for the 2007 data there are a total of 42729 housing units, for 2009, 49090 housing units, for 2011, 145531 units and for 2013 a total of 64535 housing units. How many housing units does the file contain when you merge these five data files using the CONTROL variable (the housing unit identifier) and after deleting all housing units that have a Fair Market Rent (FMR) value of either negative or missing value?** — 1 point

26373

2. **What is the mean of the Fair Market Rent (FMR) of a housing unit in year 2011? Please round your answers to two decimal places.** — 1 point

1116.38

3. **What is the standard deviation of the Fair Market Rent (FMR) of a housing unit in year 2009? Please round your answers to two decimal places.** — 1 point

367.36

4. **What is the mean of the Fair Market Rent (FMR) of a housing unit in year 2007? Please round your answers to two decimal places.** — 1 point

977.77

5. **What is the standard deviation of the Fair Market Rent (FMR) of a housing unit in year 2013? Please round your answers to two decimal places.** — 1 point

394.26

6. **In the video lesson you are asked to investigate the difference in market rents for a housing unit across various years. What would be an appropriate statistical test to do so?** — 1 point

- ○ Calculating the two means (for two different years) and making a judgment call on their difference.
- ○ A correlation across the market rents across pairs of years.
- ◉ A difference in means hypothesis test across two different years.
- ○ A chi square test of independence.

7. **If you were to do a difference in means hypothesis t-test, which of the following will be the most appropriate test?** — 1 point

- ○ Difference in means t-test assuming equal variance.
- ○ Difference in means t-test assuming unequal variance.
- ◉ Difference in means paired t-test.

8. **If you wish to test whether the fair market rent in year 2011 was different from that in year 2009, what would be an appropriate null and alternate hypothesis for the difference in means test. Please mark all that apply.** — 1 point

- ☑ H_0: $FMR_{2011} - FMR_{2009} = 0$
  H_A: $FMR_{2011} - FMR_{2009} \neq 0$
- ☑ H_0: $FMR_{2011} - FMR_{2009} \geq 0$
  H_A: $FMR_{2011} - FMR_{2009} < 0$
- ☐ H_0: $FMR_{2011} - FMR_{2009} > 0$
  H_A: $FMR_{2011} - FMR_{2009} < 0$
- ☐ H_0: $FMR_{2011} - FMR_{2009} < 0$
  H_A: $FMR_{2011} - FMR_{2009} \geq 0$

9. **Please report the t-statistic from the difference in means test for the following hypothesis. Please round your answer to two decimal places.** — 1 point

H_0: $FMR_{2009} - FMR_{2007} = 0$

H_A: $FMR_{2009} - FMR_{2007} \neq 0$

124.32

10. **Please report the t-statistic from the difference in means test for the following hypothesis. Please round your answer to two decimal places.** — 1 point

H_0: $FMR_{2013} - FMR_{2011} = 0$

H_A: $FMR_{2013} - FMR_{2011} \neq 0$

58.21

11. Which of the following Null hypothesis are supported by the data? 1 point

- [x] H_0: $FMR_{2013} - FMR_{2011} \geq 0$
- [ ] H_0: $FMR_{2011} - FMR_{2009} \leq 0$
- [ ] H_0: $FMR_{2009} - FMR_{2007} = 0$
- [x] H_0: $FMR_{2007} - FMR_{2005} \geq 0$
- [ ] None of the above

12. In which of the following years did the fair market rent (FMR0 saw the greatest increase (in terms of % increase)? 1 point

- ( ) 2005 to 2007
- (•) 2007 to 2009
- ( ) 2009 to 2001
- ( ) 2011 to 2013

13. Based on your analysis which of the following statements are supported. Please mark all that apply. 1 point

- [ ] The fair market rent of housing units remained the same across all years.
- [x] The fair market rent of housing units increased every year. **
- [ ] The fair market rent of housing units initially increased but then decreased beyond 2009.
- [ ] There was no discernible trend in the fair market rent of housing units across various years.